



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/049,438

05/30/2002

Takahiro Nakajima

11197/7

3695

23838

7590

08/31/2006

KENYON & KENYON LLP  
1500 K STREET N.W.  
SUITE 700  
WASHINGTON, DC 20005

EXAMINER

LEE, RIP A

ART UNIT

PAPER NUMBER

1713

DATE MAILED: 08/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Examiner-Initiated Interview Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/049,438	NAKAJIMA ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Rip A. Lee	1713	

**All Participants:**

**Status of Application:** RCE

(1) Rip A. Lee.

(3) \_\_\_\_\_.

(2) King Wong.

(4) \_\_\_\_\_.

**Date of Interview:** 28 August 2006

**Time:** 09:00 hrs

**Type of Interview:**

- ☐ Telephonic  
☐ Video Conference  
☐ Personal (Copy given to: ☐ Applicant ☐ Applicant's representative)

Exhibit Shown or Demonstrated: ☐ Yes ☐ No

If Yes, provide a brief description: \_\_\_\_\_.

**Part I.**

Rejection(s) discussed:

Claims discussed:

*all claims*

Prior art documents discussed:

**Part II.**

SUBSTANCE OF INTERVIEW DESCRIBING THE GENERAL NATURE OF WHAT WAS DISCUSSED:

*See Continuation Sheet*

**Part III.**

- ☐ It is not necessary for applicant to provide a separate record of the substance of the interview, since the interview directly resulted in the allowance of the application. The examiner will provide a written summary of the substance of the interview in the Notice of Allowability.  
☒ It is not necessary for applicant to provide a separate record of the substance of the interview, since the interview did not result in resolution of all issues. A brief summary by the examiner appears in Part II above.



DAVID W. WU  
 SUPERVISORY PATENT EXAMINER  
 TECHNOLOGY CENTER 1700

\_\_\_\_\_  
 (Examiner/SPE Signature)

\_\_\_\_\_  
 (Applicant/Applicant's Representative Signature – if appropriate)

Continuation of Substance of Interview including description of the general nature of what was discussed: Elmore et al. (U.S. 4,972,036) teaches a catalyst comprised of aluminum acetylacetonate and benzyltriphenylphosphonium chloride. Claims anticipated by this reference.

Kelley et al. (U.S. 4,382,132) discloses a catalyst comprised of a free radical initiator, an accelerator, and co-accelerator such as decyl diphenyl phosphate and triphenyl phosphate (claim 1). Claims 3 and 4 indicate that the accelerator is a metal naphthenate and a metal acetylacetonate. The compounds aluminum naphthenate and aluminum acetylacetonate are listed in column 2, lines 51-55. Other species that work as accelerator include aluminum acetoacetate and aluminum octoate. Claims anticipated by this reference.

Rekers et al. (U.S. 4,192,775) discloses a catalyst comprised of the reaction product of  $\text{CrO}_3$  and a phosphorus compound of formula  $(\text{RO})_3\text{PO}$  or  $(\text{RO})_2\text{POH}$  ( $\text{R} = \text{alkyl, aralkyl, aryl}$ ) deposited on a support material, followed by treating the resulting supported material with aluminum acetylacetonate (claim 1). Claims anticipated by reference.

Yoo et al. (U.S. 4,318,799) teaches a catalyst prepared by treating a regenerated catalyst with one or more aluminum containing materials in combination with one or more phosphorus containing materials (col. 8, lines 54-61). Aluminum containing compounds are aluminum carboxylates having 1-20 carbon atoms, i.e., stearates, oleates, aluminum oxalates, aluminum acetates, and aluminum halides (col. 9, line 65 - col. 10, line 15). Suitable phosphorus compounds are  $\text{R}_3\text{P}$ ,  $(\text{RO})_3\text{P}$ ,  $(\text{RO})_3\text{P}$ , and  $(\text{RO})_3\text{PO}$  where  $\text{R}$  is alkyl, aralkyl, aralkenyl (col. 10, lines 24-28). Obvious to arrive at the subject matter of claims.

Cao et al. (U.S. 6,080,303) teaches a catalyst prepared by treating zeolite with a phosphorus compound followed by treatment with aluminum phosphate (claim 1). The phosphorus compound is ammonium acid phosphate, ammonium dihydrogen phosphate, phosphoric acid, polyphosphoric acid, an organic phosphate, or an organic phosphine (claim 2). Readily combinable with secondary reference to use of common materials such as triphenylphosphine or triphenyl phosphite, and thereby arrive at the subject matter of claims.

#### Examiner's suggestions.

Elmore et al. may be overcome simply by amending claims to obviate use of benzyltriphenylphosphonium chloride. This compound is a quaternary phosphonium, which is a different class of compound altogether. However, it does possess the requisite aromatic ligand.

The most economical way to overcome rejections based on remaining references would be to amend the claims to state the transitional phrase "consisting essentially of." Note that the catalysts of the prior art necessarily contain essential components such as free radical initiator (Kelley et al.),  $\text{CrO}_3$  (Rekers et al.), or support/catalyst (Yoo et al. and Cao et al.). These additional components are required for the catalyst to function.